

Running Youth Hockey Organization

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<p>Hungarian has stepped into its Golden Age by winning the World Championships Division I and got promoted to the highest level in 2008. Since then the sport has attracted more fans, sponsors and attention by the media. The government has financially aided the youth organizations, and this has brought expert opportunities for the people that work in the sport, to do an outstanding professional work. However on the level of the clubs this investment did not bring expected results. The thesis presents the cultural disadvantages, and the difficulty of not being the leading sport in the country, by investigating the countries' leading club's situation. Sheds light on the missing pieces, how works a top prospect youth hockey organization. Designs a plan from all the aspects that need to be taken into consideration, and investigates the results of this plan after one year. The objective is to give a hand tool for the clubs in the same situation not just only in Hungary, but in the countries that have the similar structural and cultural difficulties. Naturally one year to change the structure of a whole youth hockey program is not enough so in this situation just shows the direction that the plan has took off to.</p>	
Key words Organization, Youth Hockey, Periodization, Ice hockey, Hungary	

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1 Introduction

Hungarian has stepped into its Golden Age by winning the World Championships Division I and got promoted to the highest level in 2008. Since then the sport got more attention across the country by the media, and became more popular to all the people. Lot of young children started to play hockey, and the government has invested some money to the youth level organization. However the future still does not look bright enough for Hungarian Ice Hockey.

There are three kind of structures in the level of the organization in the hockey countries. The first and highest are those countries where hockey is almost national sport, the organization of the federation of the given country is working properly. They have a lot of teams and players, good youth hockey championships, coaches etc. The lowest are those countries where hockey is just starting, they do not have facilities, no infrastructures, no coaches no players. But between these two there is the third kind where Hungary belongs also. They have quite a history already, they have some kind of organization, they have fair number of players and clubs, their national teams does not look so bad comparing to the finest countries.

Club leaders usually try to transcribe the models of the greatest hockey dynasties from the top countries. They hire professional coaches from those countries and assign them to build up the organization on the model of what they have experienced in their own countries. The first difficulty at these cases are cultural and linguistic problems. These experts cannot further perpetuate their knowledge because young athletes and old time coaches do not understand them. Next problem is that usually the leaders do not grantee enough time for these specialists, and building hockey dynasty takes time! A lot of time. Also, in many cases the clubs do not have the financials to hire expert coaches, they only can reach the adventurer types.

Basically in these clubs the scheme of organization towards hockey dynasty can be discovered, although the model misses big part from its structure. There are key things not working properly to really achieve the status of a great hockey organization. For experts who come from abroad it is merely impossible to perceive these deficiencies. They are not familiar with the cultural difficulties and advantages, they most of the time try to attain organization as they have experienced in a different (much better) environment. The most important in these situations is to use the tools what they have encountered in their career, from places they have worked for, but the change this knowledge and make it to sit on an environment that is much different from what they know.

Objective of this project-oriented thesis is to make a handbook of these clubs in these third kind of regions, how to develop their youth hockey to organization the highest levels as possible. It discusses about the advantages and disadvantages of using different kind of professional help from other countries.

This handbook was conceived when the author has been nominated head of coaching to the greatest hockey club in Hungary and Hungarian history, the flagship of Hungarian hockey, SAPA Fehérvár AV19. There has been numerous foreign coaches in this honorific position, but still the club had so big holes on its structure, what made it impossible to function on high rate. The Director of the Organization entrusted the author to rebuild the model of its junior organization.

The handbooks first part gives the basic scientific knowledge of the areas whereof the structure of a hockey dynasty model should be built up. The theoretical part is based on the work of the International Ice Hockey Federation's Coach Development Programme Manual and the Work of Dr. Balyi.

Second part is how this model fitted in real life on the clubs youth organization, what effects it made to the athletes. The empirical part construes that how the effects that cannot be taken into consideration when planning a model like this has changed the outcome after one year of use.

2 In Theory

2.1 Background of the Hungarian Ice Hockey

Ice hockey as a sport exists in Hungary a little bit over then 100 years. It is the member if the International Ice Hockey Federation since January 24th, 1927 (<http://www.iihf.com>). On the world rankings they are on the 20th position (<http://www.iihf.com>). Most hockey experts agree that Hungarian Hockey is living the golden age nowadays. Biggest achievement was that the Hungarian national team played at the World Championships in 2009.

Examining the level of the juniors, it is clear that Hungarian hockey will have more quality players coming of age to the senior teams. Ten years ago the U18 team was grappling in the middle of the Division II. of the World Championships, and all the players were playing in the Hungarian Ice Hockey League. This year they achieved silver medal in Division I. behind Germany, and in the roster there were ten players playing abroad (<http://stats.iihf.com>) in extra leagues in top countries (Slovakia, Sweden, Canada, USA, Switzerland, Austria).

Analyzing the number of teams in youth hockey organization, we can see a clear development. The under 21 (Figure 1) league (<http://icehockey.hu>) which is on the top of the pyramid, and should be the outcome of nurturing players from 10-15 years shows still the imperfection of the last decade. In this league there are 5 teams, from which one team is from Serbia and participating in the Hungarian league. The under 18 (Figure 1) league (<http://icehockey.hu>) has still not made a big step forward, with 7 teams participating. However our under 16 (Figure 1) league (<http://icehockey.hu>) is the first hope for the Hungarian hockey. On this level there are 11 teams which from 8 is basically on the same level. There was never an example of this in Hungary. But the big step forward comes in the under 14 (Figure 1) league (<http://icehockey.hu>) , where are 20 teams divided into two different levels.

This was the first time in the history of hockey that Hungary needed two levels of championships. The lower levels do not have normal championship games, they just play without results. That is the reason why those leagues are not represented here.



Figure 1: Number of teams in Hungarian Youth Hockey

In player numbers we find the same development as we find in the number of the teams. While the under 16 National team selects out of 40 to 50 quality players the under 14 National select is working with over 120 players.

Taking all these into consideration Hungarian hockey should be looking forward to a brighter future. Nevertheless the number of teams and player should make an optimistic picture, the reality is more darker.

First of all things there are not enough well educated coaches working in this environment. The coaching education system in Hungary, hockey wise is poor. The professors on the university give the young coaches a fine knowledge about psychology, physiology etc. but the teaching of the subject of Hockey is not measurable. Outcome of this, the coaches know very little about developing players to a professional hockey player.

Also the organization level needs more attention in the clubs. The leaders do not care much about youth hockey, and coaches use their athletes to achieve higher status at the ongoing championships, and they are teaching more advanced skills and tactics to the children then actually their age would require. This makes the Hungarian young hockey teams better even the best clubs all over the world, but leaves out essential skills and techniques which the players should learn at that age and cannot make up later.

Last thing what holds back Hungary from advancing higher levels are the referees. There are no young titans and they are not educated by the International Ice Hockey Federation regulations. There has been changes in the structure of the referees committee, because they realized their insufficiencies.

2.2 Background of SAPA Fehérvár AV 19

The club is over 40 years old, and it is the second indoor rink in the country. It can hold 3500 spectators, has a locker room for all age groups. The environment is ideal to raise junior players to the highest levels. The senior team is 11 times Hungarian Champion and 2 times Inter-league Champion. (<http://albavolanhockey.hu/>)

In the youth organization the club participates in all the championships of all age groups what the Hungarian Federation provides. It does not just participate but has enough players to not overlap younger player to higher age groups, which is very unusual in Hungary.

Youth hockey operates with over 200 hundred registered players in 7 age groups. It employs 8 coaches, where the head coaches run only just one team, which is again very rare in the Hungarian organizations.

On the other hand the club only has just one ice surface, and this gives a huge problem, which is lack of ice time. It is very hard to find the optimal balance between all the needs that the ice rink has to fulfil. There is a whole hockey organization, figure skating, synchrony skating, public skating, school and kindergarten skating, plus armature teams only on one ice surface. This is basically unbridgeable problem, and the only solution could be another practice rink.

Leaders of the club have already hired numerous coaches from all over the hockey countries (Slovakia, Czech Republic, Canada) and from the first look from the outside it looks that a normal running hockey organization, but in the inside, the coaches are working in a different system, the players do not have a real control by authority, there are no scheme for the youth programme.

In the higher age groups there are big differences between the players, which makes it almost impossible to work properly with one team, and the lower levels the lack of ice times, and the pressure of achieving better and better results makes it hard to do a proper job by teaching the age characteristic techniques and tactics.

At last but not least the financial situation of the region is not outstanding. Most of the money goes for the senior team and the parents are not capable of paying a lot of money to take their children to do sports. In this case it is hard to get any extra ice time or tournaments which would develop the players.

2.3 Economical Planning

Before entering into the professional work of ice hockey, there has to be made preparations economy wise. It is just one thing to do expert job on the ice and off the ice training wise, but first the necessary conditions must be created. This section covers all the different kind of needs of a youth hockey organization.

The first we have to talk about is, how to use the ice surface, when it is used by many different kind of purposes. Figure 2 shows the example of how can an ice rink be used with, youth hockey, figure skating, public skating, etc. (IIHF Arena Manual 2007, 11)

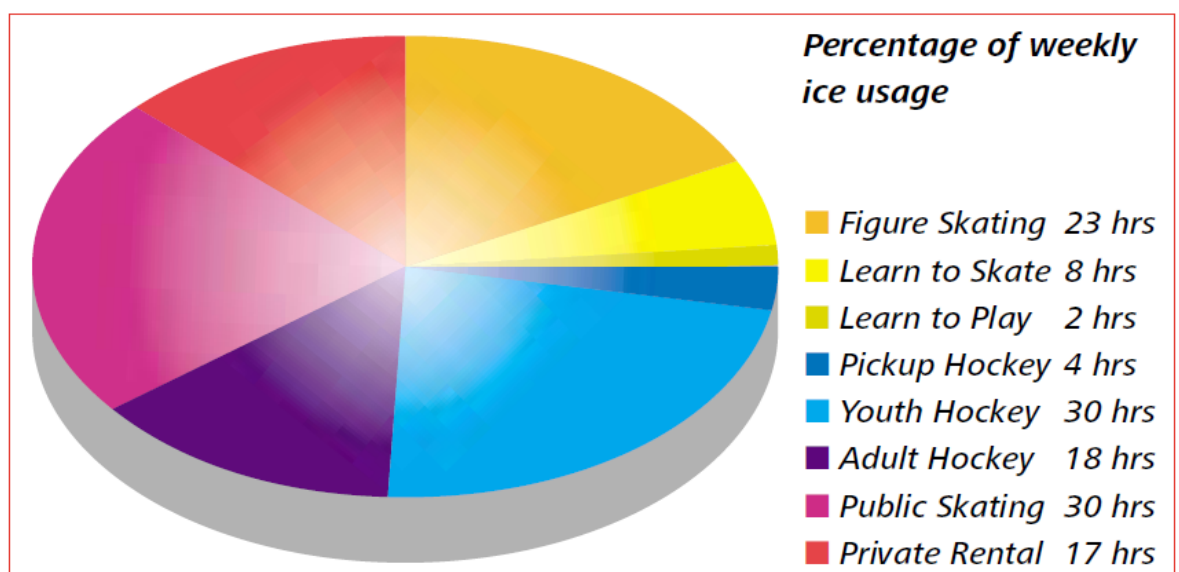


Figure 2: Usage of Weekly ice surface usage (IIHF Arena Manual 2007, 119)

When we are talking about lack of ice there can be more things to do. First is to make the most out of the ice time given. It is good when a reference person sits up on to the stairs and takes time, how much a player is actually working on ice (IIHF Coaching Manual Level 1 2007). The lower we go in the age groups the more can a player work on ice. When a player works 1/5th of the ice time, then it is really a big mistake by the organizer. It is waste of money and precious time (IIHF Coaching Manual Level 1 2007). Second thing is that to use the ice practices to teach the players the things that they only can learn on the ice. When it is possible they need practice the skills or capabilities off ice what is possible (Bompa 2000, 254), for example the physiologic capabilities can be developed in off ice training, so there is no need to use the ice time for that.

Youth hockey cannot run without children wanting to skate and then to play. This sport is very appealing, but for the parents who are looking for sport of their children often can be repugnant. If the club wants to have enough good athlete types players to select from, they need to promote the sport itself. (Andicsné - Sándorné - Straub - Ungváriné 1997)

Club needs to assure the parents that it is not just sports where they take their kids, but good education for real life also. In younger ages usually the parents are not looking for their kids to be NHL players. When that part is coming usually the kids are so infected by the greatness of the sport that they can stand out by the sport when the parents think differently. So the club must assure that the kids learn helpful things for life. (Andicsné - Sándorné - Straub - Ungváriné 1997)

Also for this the older players need to behave outside of the rink properly. Because everybody knows about sportsmen, and if they see that they are outstanding in school, they know how to behave in public and not using unhealthy substances then their promotion rate will get higher and will be a value to belong there (Andicsné - Sándorné - Straub - Ungváriné 1997).

To run the organization properly the financial situation needs to be in order. Nurturing 200 or more children takes a lot of money. But there are some tricks and modification to be made to earn some money just for the juniors. In SAPA Fehérvár there are a lot of helping hands that make the youth programme run able. (Andicsné - Sándorné - Straub - Ungváriné 1997)

Where the start always can begin are firms and companies where the players parents are at work. They always can give some sponsor money to the age group where their sons are playing, which does not make a bit difference to the companies but helps a lot to the coaches and the parents of that team (Andicsné - Sándorné - Straub - Ungváriné 1997).

Cultural advantages can be utilize, but for that the environment needs to be known. What SAPA Fehérvár AV 19 has done was they established endowment only for the youth organization. This is not just a charitable-trust but everybody can give 1% of their taxes to this endowment. Now the small people's 1%'s help already a lot but the parents can convince their employer's to give the companies 1% also to the foundation, which does not make a difference to them if they are giving their taxes to the government or to a youth sport organization. The recent years from this foundations the goalies get aid to buy their equipment, the teams get help if they go for tournaments, and numerous other things. (Andicsné - Sándorné - Straub - Ungváriné 1997)

Junior can benefit from the senior teams games as well. In Székesfehérvár (home town of SAPA Fehérvár AV 19) on the league games some of the young players go around and sell lottery (Figure 3) to the spectators, on the speakers they announce that the incoming money goes for the youngsters development (Andicsné - Sándorné - Straub - Ungváriné 1997).

Also another alternative is that they sell "tickets" on vatera (Hungarian web shop) to be the 23rd player of the team. Who buys this ticket can sit on the bench with the players and watch the game from there. This has brought a lot of attention and money as well. (Andicsné - Sándorné - Straub - Ungváriné 1997)

2.4 Psychological Planning

When making a structure for a youth hockey organization it is essential, that all the stages following one another are they match together and they are build on each other. They follow the same basic idea from the begging to the end.

It is very important that the coaches select the gifted players to their teams, because of lack of ice time and teams there is no time for those players who just want to do sports. Even when the children are young the coaches need to look for talent because they cannot give more time to exceed because the lack of place in the team. Coaches have to make cutting decisions all the time. They have to observe closely the athletes, because they need enough knowledge to do the right decisions. (Bompa 2002, chapter 1)

Hockey is a physical game, based on speed, strength and quickness. That is why hockey players need outstanding physical qualities. It is very important that the physical assets are not the only one what makes players great but certainly the most important. (Bompa 2002, chapter 2). When coaches look for these virtues they need to have something to rely on. A survey (appendix 1) is a very good helping tool, when scouting players.

While hockey is a physical game on the other hand it is not enough to have exceptional technique and skills but most importantly mental toughness. Experts say that hockey is almost 80% mental game (Miller 2003, 3). The players need to get ready shift after shift, game after game. They need to recover not just physically but mentally as well. They need to control their emotions (Miller 2003, 47) manage their thoughts (Miller 2003, 15) and they have to come back from injuries as well (Miller 2003, 175). This is a skill a talent as well just as fake on the ice.

The coaches have to test (Bompa 2002, 23) these capabilities as well and a survey can help in this case as well (appendix 2).

After these qualities come the hardest skills and abilities of all what the coaches have to look for. This is spotting the Intangibles (Bompa 2002, chapter 4). These are the abilities what really make the differences. A player who has the qualities what were mentioned above but it is still not enough. There are those players who have everything but still the cannot excel in the sport (Miller 2003). Usually these player are who misses those intangible skills that are unable to use their talents. Coaches need to have a solid understanding of these attributes, what they have to look for (Bompa 2002, chapter 4). A survey can help in these case as well (appendix 3).

In the countries where are not a lot of team and not a lot of players, it happens all the time that the players that start to play in the early ages they will end up playing for the same team for more than 10 years. Because lack of players there are not a lot of change in the teams unity. This means that the team has to be in a very good shape, because it they start of on the wrong foot then it will cost for the players 10 years of miserable time (Albert V. Carron, Heather A. Hausenblas, Mark A. Eys 2005, 327). Coaches have to develop their team from the early ages (Albert V. Carron, Heather A. Hausenblas, Mark A. Eys 2005, 21), to achieve team dynamics. They have to sat the team norms right in the early stages (Albert V. Carron, Heather A. Hausenblas, Mark A. Eys 2005, 171). Players need to know their roles (Albert V. Carron, Heather A. Hausenblas, Mark A. Eys 2005, 153) on the team otherwise it will cost conflicts all the time, and when the players get older the bigger these conflicts are going to be. Coaches have to give time and the effort to the team to reach the highest team structure as possible!

2.5 Physical Planning

At this chapter the research will engage the psychical aspect of planning. Modern hockey made it clear in the last years that it has to deal with two parts in this case. It is not only just the on-ice exertion, but the off-ice preparation what makes nowadays the complete players (Murphy 2004), when talking about physical readiness to exceed (Miller 2003). Nowadays hockey players need to be outstanding athletes, not just in their own sport but in the all around abilities. This needs a carefully designed long term training plan (Balyi 2001) that includes all the necessary ingredients.

The subchapters below will disjoint the subject from both directions, the off-ice and on-ice training plan. It will categorize it into stages (Balyi 2001), by age groups, and it gives a specialised overview (Bompa 2002, chapter 2) for the regions that are similar the organization of SAPA Fehérvár AV 19. The stages are designed to follow each other step by step, thereby giving a structure the youth hockey development model. At the work of Dr. Balyi our model is the late specialization (Table 1)

Table 1: Early and Late Specialization Model (Balyi 2001)

Stages	Early Periodization	Late Periodization
1	Active Start	Active Start
2	FUNDamentals/Learning to Train/Training to Train	FUNDamentals
3	Training to Compete	Learning to Train
4	Training to Win	Training to Train
5	Active for Life	Training to Compete
6		Training to Win
7		Active for Life

Because we are talking about youth hockey, and because of the nature of the sport (Bompa 2002, 22-23) the Late Periodization is the one that stands for the purpose. However for the teams that are in the second kind of regions, they do not have the facilities and environment to use this specific model, the model of Dr. Bompa is more practical in this case (Table 2).

Table 2: Long term Stages and the ages (Boys) (Bompa 2002, 23-29)

Stages	Late Periodization	Age
1	Active Start	Under 6
2	Initiation Stage	6-10
3	Athletic Formation	11-14
4	Specialization	15-18
5	High Performance	Over 19

2.5.1 Active start stage

Boys: under 6 years old (Bompa 2002)

While this stage is certainly the easiest, to work with, the biggest mistakes can be done here as well. The most important is to let the kids play as much as possible, on-ice and off-ice as well (Bompa 2002) (Balyi 2001). Let them try their use of hands and legs, how body works and behaves. It is ideal to arrange skating schools for kids that want to do already sports. This is important because the other sports are already looking for players to coop with, and it will not do harm if these youngsters see ice at early age. Parents and their children who are new to sports should get an overview how the system works.

Two times on-ice and one time off-ice games should be enough for this stage. The kids are getting use to taking orders and execute them, be in a group of other children to learn how to conform and adapt the situations (Bompa 2002).

2.5.2 Initiation stage

Boys: 6 to 10 years old (Bompa 2002, 23)

Children in the initiation stage should participate in low-intensity training programs, in which the emphasis is fun. These young athletes must focus on overall athletic development and not sport-specific performance. Attention span is short at this age and children are action oriented, thus they cannot sit and listen for long periods of time. It is especially important for trainings at this stage to be varied and creative. (Bompa 2002, 23.)

Coaches need to emphasize multilateral development by introducing a wide variety of skills and exercises. Providing every child with enough time to adequately develop skills and equal playing time in games and activities is essential. Also coaches need to positively reinforce children who are committed and self-disciplined. Selecting suitable number of repetitions for each skill, and encourage children to perform each technique correctly is key thing for this stage. (Bompa 2002, 23.)

The body is growing at steady rate and larger muscle groups are more developed than smaller ones. The cardiorespiratory system is developing and aerobic capacity is adequate for most

activates. Anaerobic capacities, however, are limited at this stage as children have a low tolerance to lactic acid accumulation. (Bompa 2002, 23-24.)

The following guidelines help in design training programs that are suitable for young athletes in this stage (Bompa 2002, 23.-24):

- Encourage children to develop flexibility, coordination and balance
- Encourage children to develop various motor abilities in low-intensity environments.
- Modify the equipment and playing environment to suitable level
- Design drills, games, and activities so children have the opportunities for maximum active participation
- Promote experiential learning by providing children with opportunities to design their drills games and activities, Encourage them to be creative and use their imaginations.
- Simplify or modify rules so children understand the game.
- Introduce modified games that emphasize basic strategies and tactics.
- Encourage children to participate in drills that develop attention control prepare them for the greater demands of training and competition that occur in the athletic formation stage of development.

2.5.3 Athletic formation stage

Boys: 11 to 14 years old (Bompa 2002, 25)

It is appropriate to moderately increase the intensity of training during the athletic formation stage of development. It is very important to understand that the variances in performance may be the result of differences in growth. Some athletes may be experiencing a rapid growth spurt, which can explain why they lack coordination during particular drills. As a result emphasize developing skills and motor abilities, and not performing and winning. (Bompa 2002, 25-26)

Coaches need to encourage participation in variety of exercises from the specific support and from other sports, which will help them improve their base and prepare them for competition in their selected sport. They need to help the athletes to refine and automate the basic skills they learned during the initiation stage and learn skills that are a little more complex. All children need opportunities to participate at challenging level. But they have to avoid competitions that place too much stress on the body anatomically. By providing them more complex

drills, they improve concentration. They have to develop strategies for self-regulation and visualization. (Bompa 2002, 25)

Although most athletes are still vulnerable to injuries, their bodies and capacities are rapidly developing. Their cardiorespiratory system continues to develop, and tolerance to lactic acid accumulation is gradually improving. (Bompa 2002, 25.)

The following guidelines help in design training programs that are suitable for young athletes in this stage (Bompa 2002, 25-26):

- Design drills that introduce athletes to fundamental tactics and strategies, and reinforce skill development
- Emphasize improving flexibility, coordination, and balance.
- Emphasize ethics and fair play during training sessions and competitions.
- Introduce the athletes to exercise that develop general strength. The foundation for future strength and power gains should begin in this stage.
- Continue developing aerobic capacity. A solid endurance base will enable athletes to cope more efficiently with the demands of training and competition during the specialization stage.
- Introduce athletes to moderate anaerobic capacity. This will help them adapt to high-intensity anaerobic training, which takes on greater importance in most sports during the specialization stage.
- Introduce athletes to variety of fun competitive situations that allow them to apply various demands than those earlier techniques and tactics.
- Provide time to play and socializing peers.

2.5.4 Specialization Stage

Boys: 15 to 18 years old (Bompa 2002, 26.)

Athletes in the specialization stage are capable of tolerating greater training and competition demands than those in earlier stages. The most significant changes in training take place during this stage. Athletes who have been participating in a well-rounded program emphasizing multilateral development will now start performing more exercise and drills aimed specifically at high-performance development in one sport (Bompa 2002, 26.).

Coaches need to closely monitor the volume and intensity of training to ensure that athletes improve dramatically with little risk of injury. Toward the end of this athletic development stage, the athletes should have no major technical problems. Thus, the coach can move from teaching to coaching role. (Bompa 2002, 26.)

The following guidelines help in design training programs that are suitable for young athletes in this stage (Bompa 2002, 26-27):

- Closely monitor the development of athletes during this stage. They will be developing strategies for coping with increased physical and psychological demands of training and competition. They are also vulnerable to experiencing physical and psychological difficulties from overtraining.
- Check for progressive improvements in dominant abilities for the sport, such as power, anaerobic capacity, specific coordination, and dynamic flexibility.
- Increase training volume more rapidly than volume, although still volume must be increased progressively.
- Involve athletes in decision-making process whenever possible
- Continue to emphasize multilateral training, particularly during the preseason. However it is more important to emphasize specificity and to use training methods and techniques that will develop a high level of sport specific efficiency, particularly during competitive season.
- Encourage athletes to become familiar with the theoretical aspects of training.
- Make developing the aerobic capacity a high priority for all athletes.
- Progressively increase the intensity of anaerobic training. Athletes are capable of coping with lactic acid accumulation.

2.5.5 High performance stage

Boys: 19 years old and older (Bompa 2002, 28.)

A well designed training plan based on sound principles on long-term development will lead to high performance. Exceptional performance result that athletes achieved during the initiation, athletic formation, or specialization stages do not corral with high performance results as a senior competitor. This thesis is concerned about only the first three development stages because it is about developing juniors and this would be another topic. (Bompa 2002, 28.)

2.6 Regeneration Planning

When talking about ideal development, it needs to be taken into consideration that the work and work load is just half of the cake to the total perfection. The other and equally prior peace is the regeneration. As we can see in Figure 3, the on super compensation diagram that the body needs to recover fully to be able to adapt and improve.

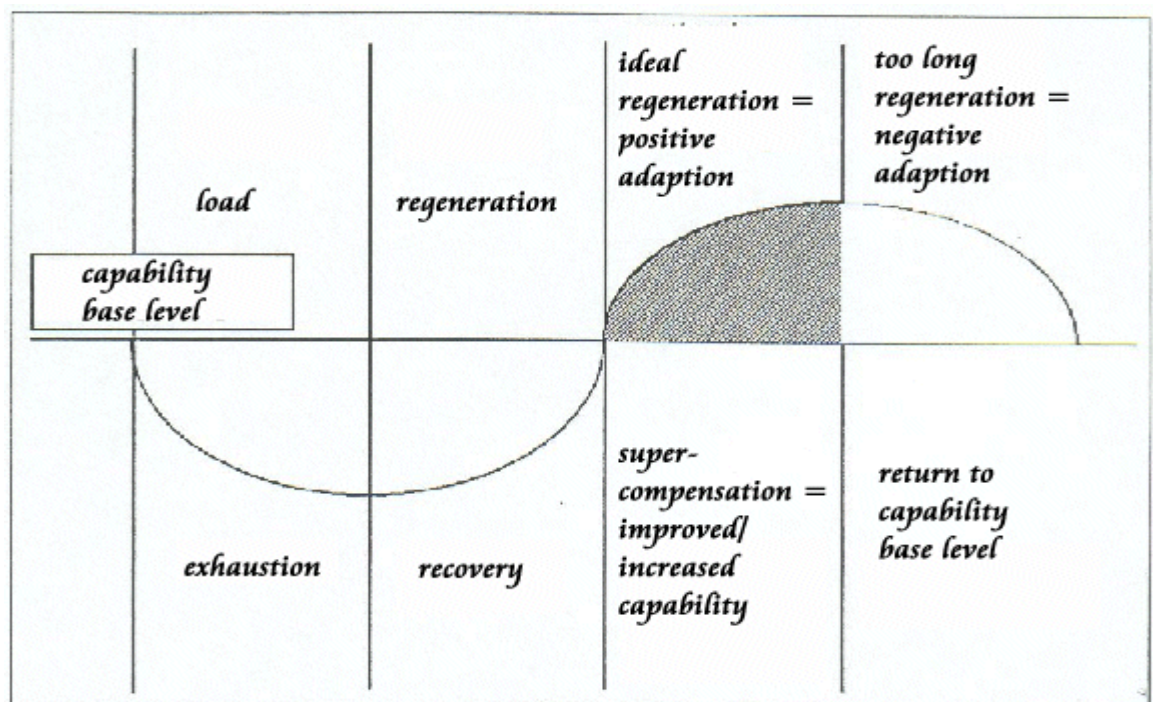


Figure 3: Super compensation

The fitness level of a human body in training can be broken down into four periods: initial fitness, training, recovery, and super compensation. During the initial fitness period, the target of the training has a base level of fitness (shown by the first time sector in the graph). Upon

entering the training period, the target's level of fitness decreases (training is a catabolic process, shown by the second time sector in the graph). After training, the body enters the recovery period during which level of fitness increases up to the initial fitness level (shown by the third time sector in the graph). Because the human body is an adjustable organism, it will feel the need to adjust itself to a higher level of fitness in anticipation of the next training session. Accordingly, the increase in fitness following a training session does not stop at the initial fitness level. Instead the body enters a period of super compensation during which fitness surpasses the initial fitness level (shown by the fourth time sector in the graph). If there are no further workouts, the body's fitness level will slowly decline back towards the initial fitness level (shown by the last time sector in the graph). (<http://en.wikipedia.org>)

If the next workout takes place during the recovery period, Overtraining may occur. If the next workout takes place during the super compensation period, the body will advance to a higher level of fitness. If the next workout takes place after the super compensation period, the body will remain at the base level. (<http://en.wikipedia.org>)

More complex variations are possible, for instance sometimes a few workouts are intentionally made in the recovery period to gain bigger super compensation effect. (<http://en.wikipedia.org>)

In organizations like SAPA Fehérvár AV 19, this chapter should come automatically, if it would be on the level of the great clubs in the top countries. The lack of attention in the past this is still a prior problem to be solved.

Athletes not only warm up to physically prepare their bodies for training or competition but also to mentally warm themselves up. Warm ups are a crucial part of performance. If completed correctly they enable the body to perform at its peak performing ability at the current time. There are three different types of warm ups; gradual increase of physical activity to raise the pulse (Eg. cycling), a joint mobility exercise, stretching and a sport related activity (Eg. dribbling for basketball). A warm up should be specific to the task required to perform in order to activate the correct energy systems and prepare the correct muscles. There are many beneficial effects from warm ups including: Increased heart rate. This enables oxygen in the blood to travel faster meaning the muscles fatigue slower, also, the synovial fluid between the joints is produced more to reduce friction in the joints, the capillaries dilate and it lets more oxygen travel in the blood: Higher temperature in the muscles. This decreases the thickness of the blood-letting the oxygen travel to different parts of the body quicker, it also decreases the

viscosity within the muscle, removes lactic acid, lets the muscles fibres have greater extensibility and elasticity and an increase in force and contraction of muscles. (Yessis 1996)

Depending on the intensity of the exercise, cooling down can involve a slow jog or walk, or with lower intensities, stretching can be used. Cooling down helps remove lactic acid which can cause cramps and stiffness and allows the heart rate to return to its resting rate. Cool downs should involve a gradual yet continuous decrease in exercise intensity (i.e. from a hard run to an easy jog to a brisk walk), stretching, and rehydration. Durations can vary for different people, but 5-10 minutes is considered adequate. (Yessis 1996.)

The concept of rest varies. The most important is sleep. At night the hours between 11-2 is the most adequate for resting. But having more than 8 hours of sleep per day in sports life is essential (Yessis 1996). When sleeping the nervous system can rest, because it is not stimulated by anything. Also between practices or school and practice it is good to have some quiet time and manage the mental aspects (Miller 2003), and not play on play station or computer, because that is very hard on the nervous system (Yessis 1996).

The human body consists of elements and compounds ingested, digested, absorbed, and circulated through the bloodstream to feed the cells of the body. Except in the unborn fetus, the digestive system is the first system involved. In a typical adult, about seven litres of digestive juices enter the lumen of the digestive tract. These break chemical bonds in ingested molecules, and modulate their conformations and energy states. Though some molecules are absorbed into the bloodstream unchanged, digestive processes release them from the matrix of foods. Unabsorbed matter, along with some waste products of metabolism, is eliminated from the body in the feces. (Yessis 1996)

Studies of nutritional status must take into account the state of the body before and after experiments, as well as the chemical composition of the whole diet and of all material excreted and eliminated from the body (in urine and feces). Comparing the food to the waste can help determine the specific compounds and elements absorbed and metabolized in the body. The effects of nutrients may only be discernible over an extended period, during which all food and waste must be analyzed. The number of variables involved in such experiments is high, making nutritional studies time-consuming and expensive, which explains why the science of human nutrition is still slowly evolving. (Yessis 1996)

In general, eating a wide variety of fresh, whole (unprocessed), foods has proven favourable compared to monotonous diets based on processed foods. In particular, the consumption of whole-plant foods slows digestion and allows better absorption, and a more favourable balance of essential nutrients per Calorie, resulting in better management of cell growth, maintenance, and mitosis (cell division), as well as better regulation of appetite and blood sugar. Regularly scheduled meals (every few hours) have also proven more wholesome than infrequent or haphazard ones. (Yessis 1996)

2.7 Testing Players

Tests are very important while working with athletes. While working the coaches need to see, is the work going to the direction they want it. This needs constant testing. They can evaluate improvement by analysing the test. It is essential at later ages to be tested in short periods of times. Also the event of body development needs to be in concern when analysing the test. That is why this thesis deals with full-sized care about testing in youth hockey development. In the chapters below there are some guidelines about what needs to be tested and how systems work in the body. But first there are some researches on the areas that need to be tested, to fully understand the importance of it and to get a little overview about how the body works.

“Aerobic fitness” is perhaps the most common of all fitness attributes evaluated in athletes. Endurance athletes rely on high levels of aerobic fitness since their rate of energy supply, or pace, is ultimately determined by their ability to convert fuels into ATP in the presence of oxygen. Athletes involved in intermittent anaerobic sports such as netball, rugby and hockey must also have well developed aerobic systems since recovery from anaerobic efforts is largely an aerobic process. The concept of aerobic fitness is somewhat vague however since there are several facets of aerobic energy supply important to the athlete. These include aerobic power, anaerobic threshold and economy of movement (Sleivert).

Aerobic power, best measured directly in the athlete by determining maximal rate of oxygen consumption ($\text{VO}_{2\text{max}}$), is the single best measure of an athlete's maximum ability to take in oxygen from the air, load it into the blood, and transport it to the working muscles to sustain exercise aerobically. It therefore represents our best measure of the current aerobic training status of the cardio-respiratory system. (Sleivert)

Anaerobic threshold is a controversial term that is generally agreed to represent an exercise intensity above which energy supply become increasingly reliant on oxygen independent glycolysis or anaerobic metabolism. Exercise above anaerobic threshold intensity cannot be sustained for long due to the accumulation of metabolites such as lactic acid that contribute to fatigue. (Sleivert)

Economy of movement is particularly important for endurance athletes that must move as fast as possible for the least amount of energy expenditure. An economical athlete will have a lower oxygen consumption (VO_2) at a given exercise intensity than a less economical athlete and will therefore be able to save energy for the later stages of a race or exercise harder for a similar energy expenditure. (Sleivert)

For many athletes the ability to procedure and/or sustain exercise intensity that exceeds the energy supply capabilities of the aerobic system is an important determination of success. In this aspects, energy supply pathways are capable of producing Adenosine Triphosphate (ATP) independently of oxygen supply (anaerobic metabolism) are critical. Similarly, in sports characterised by intermittent activity, anaerobic energy supply is important since there is a lag in the recruitment of aerobic energy supply at the start of each rest-work transition and initial energy must be derived from anaerobic sources. (Sleivert)

Flexibility is an integral component of an athlete's physical conditioning. An athlete's flexibility is influenced by demands placed on the musculoskeletal system as a result of sport participation and is related to the level and length of involvement. Flexibility is of interest to coaches, health professionals and sport scientists due to role of flexibility in sports performance, influence on posture and muscle balance, injury prevention and rehabilitation. Flexibility should not be thought of as an overall body component but rather as being joint specific. (Roche)

Field-testing is commonly used to measure the performance of large groups of athletes, to achieve simple performance measures without the need for expensive laboratory equipment or to be able to test athletes in their own environment, rather than subjecting them to the pressures laboratory tests. (Robson)

This test is a 15 metre field where the athlete has to run there and back, first with 8,5 km/h and after each minute they have to accelerate by 0,5 km/h. The multi stage shuttle run test is an excellent performance indicator of aerobic fitness in weight bearing sports which requires

many changes of directions. The energy cost of changing direction and decelerating then accelerating is greater than continuously running in a straight line. (Robson)

The twelve minute run test was developed by Cooper in the 1960's. The athlete has to run twelve minutes and the test result is how many meters he archived. This type of test is useful for some weight bearing sports, especially those that do not require constant changes of directions. An improvement in distance covered in the time of the test assumes an improvement in aerobic energy system. (Robson)

In sports where vertical displacement is required the vertical jump is a good field measure. It has been found that the primary prediction of jump height is take off velocity and the predominant factor in takeoff velocity is concentric. Therefore there is a relation between jump height and power. The two legged vertical jump is used as a performance predictor of power and one-legged vertical jump as a performance predictor of concentric strength. (Robson)

When coming of testing muscle balance and flexibility, we do not need much of laboratory equipment. What we need is a tape measure. When testing different kind of joint stretches it is important that to compare those parts which from there are two on the body, it is very important that they are close enough, to make the body symmetrical. Hockey is one sided sport and develops the body unsymmetrical, but it needs to be trained to be symmetric, otherwise it can cost injury. (Roche)

Apley scratch test provides an indirect test of shoulder flexibility in a combined movement pattern. Comparison is made between external rotation, flexion and abduction in one test, and internal rotation, extension and adduction in another test (Roche).

Sit and reach test is widely used as an indirect measure of flexibility. The athlete sits on the floor with their lower limbs extended and pushes on the box's horizontal bar with their arms extended as far as they can reach. This involves movement toward, or over, the athlete's feet as far as they can possibly reach. The result are recorded as a numerical score to the nearest cm, where positive measurements is attained by the athletes hand's reaching beyond their feet. This test indicates changes in an athlete's bilateral hamstring length, pelvis movement and back flexibility when forward bending. (Roche)

3 In exercise

In my work placement I have been nominated to be the head of coaching for the club, that this thesis mentions several times, SAPA Fehérvár AV 19. In the beginning of the season, with the coaching stuff, we made a handbook for the youth organization, how to change the system what we had before. The negative thing is that it is in Hungarian and in a very rare version. This year was only a trial year, we analyzed the results and we are going to do changes to in the future.

This handbook pays attention to all aspects that is written above in the theoretical sections. We wanted to investigate the youth program from every direction, and we wanted to make changes in every aspect in this matter. On my hint, we used methods from professionals who I made the research part of this thesis, on their work. I wanted to change the structure of the hockey in this club, but I did not feel comfortable with my experiences, so I used a lot of material, work and idea of other professionals.

Basically we changed the model of the youth hockey program to the model I described in the research part. Because of the linguistic problems I did not put the original model. It is only just a rare material in Hungarian language, and there are already a lot of things we have changed about it. It will be in written and presentable version in the late summer.

In the empirical part I describe the how we used the model, that is described in the research part of this document.

3.1 Target Organization

Target club is as it was already mentioned is SAPA Fehérvár AV 19. In the first chapter there are the background information about this particular club, however more data are necessary to make a clear picture how and why that plan has been designed. Also we need some information when analyzing the implementation to compare it to.

The team has seven teams and 199 registered players, plus eight coaches (Table 3). Usually for the youth teams the teams has 20 to 25 hours per week. First this could sound reasonable, but the organization competes 7 teams in the championships, and the games take away most of the precious time in the season.

Table 3: SAPA Fehérvár AV 19's youth teams

Teams	U8	U10	U12	U14	U16	U18	U21	All to- gether
Players	42	37	33	27	23	19	17	198
Full time coaches	0	0	0	1	1	1	1	3
Coaches that help in more teams	4	4	3	1	1			5

3.2 Plan and Implementation

Once more the project plan was to change the structure of the youth hockey model of the club SAPA Fehérvár AV 19. I wanted to change it completely, to the similarity to other clubs in countries with great hockey cultures. I used the plans I have already wrote down in the research paragraph, and I will cover how I put those ideas into work. Also I will acquaint the results of how these worked out!

As it was mentioned in the earlier chapters, the club already had some habits, what it gained from the coaches working at the post of head of coaching. The biggest trouble is to change the habits that already innervated into the system. First step was to give a guideline to the coaches. The next step was of course to make a system for the parents that how they have to behave, what are their roles and rights. The last one was to make the players understand the principals of being an athlete, and not being a free time activator. The chapters down below will discuss about all the changes that needed to be done.

3.2.1 Economical

Using the ideas from the chapter *Economical Planning* the club has used them and basically doubled the income of the youth hockey. The organization only had the member dues (Figure 4) from the players in each month. It was 12 month per year. Counting that with 200 players it was totally 48.000 € per year for the seven teams budget.

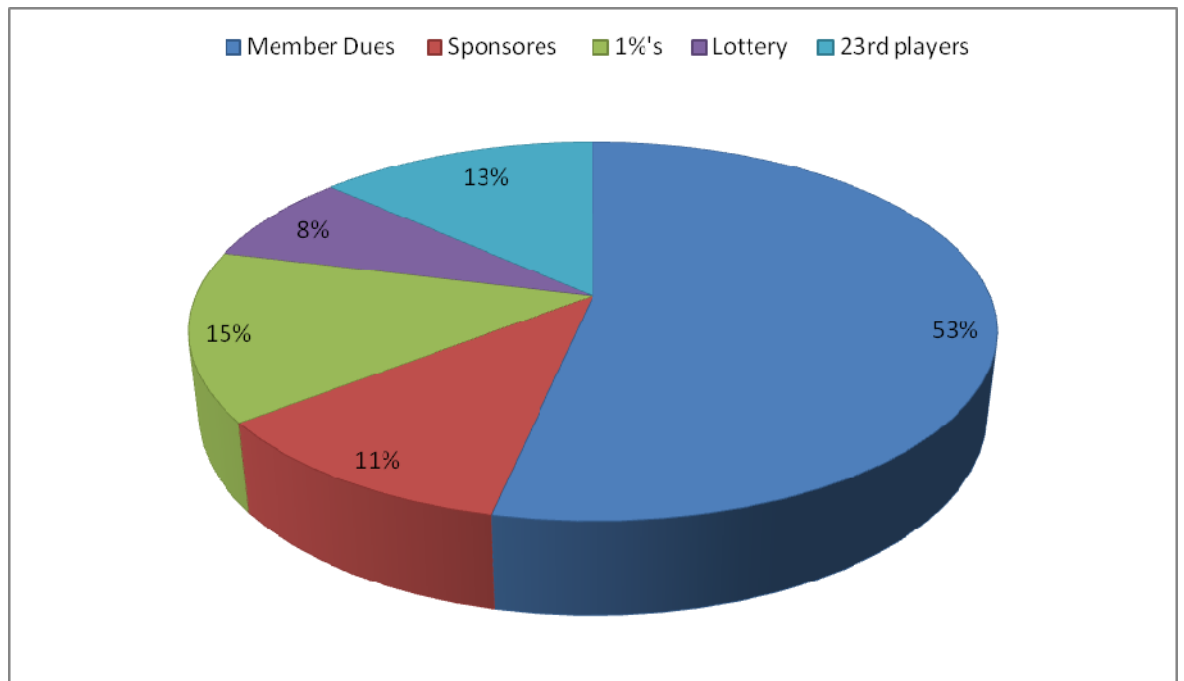


Figure 4: SAPA Fehérvár AV 19's youth hockey budget 2009

Sponsor money (Figure 4) was different than the other incoming sources. All the others were shared equally between the teams, but at this source the parents that managed to acquire the money was granted to the team where the parent's children was attended. 1%'s (Figure 4) were a very big help 15% of the whole budget. This is the hardest to basically use, because the government expects that the money is spend beneath the rules and guides. In theory is a good thought, however it makes it very long and hard to run it in the government's system's. Lottery and the 23rd (Figure 4) player idea has worked very fine. The means team has 36 six home games, and all the games were sold for 23rd players and the lottery was very popular especially at the VIP sectors.

All together the budget was almost doubled by this little tricks. That made it possible for our teams to go and participate at international tournaments. Of course the parents needed to devote some money for each happening. The next table (Table 4) shows the tournaments for the age groups. (Because lack of time and tournaments the U 18 and the U 21 team had used their share of money to different occasions)

Table 4: Tournaments in 2009-2010 season

U10					
Date	Country	City	Teams	Class	Place
2009 August	Austria	Graz	15	3	2
U12					
Date	Country	City	Teams	Class	Place
2010 April	Italy	Bolzano	30	1	5
U14					
Date	Country	City	Teams	Class	Place
2009 April	Slovenia	Bled	12	2	1
U16					
Date	Country	City	Teams	Class	Place
2009 December	Check	Prague	8	1	6

The club has also made another investment in the youth program. The government has provided some of the teams with an financial aid. This made it possible to the coaches got hold of professional equipment which has made the work easier, to be outstanding (Table 5). Here is the list of the equipment that the organization has acquired from the government's aid:

Table 5: Tools from the government's aid

Electronical Devices	Off-Ice Tools	On-Ice Tools
Camera	Spinning Bikes	Box Hockey Game
Notebook	Treadmill	Shooting Target
Projector	Polar Watches	Different Pucks
Scanner	Gym Equipments	Speed Tracer
Skating DVD	Weights	Attacking Triangle
Puck Handling DVD	Balance Boards	Pass Masters
	Balls	Sweet Stick handlers
	Slide Boards	

3.2.2 Psychological

As the *Psychological Planning* chapter shows it is important to do selection from the players, and these cuts can be hard. But the ice time problems do not allow the coaches to deal with every child that comes in the door of the ice rink. Unfortunately until the club does not build another practice rink that is impracticable to give every child enough time and care, even if in the

later ages some of them could become better than the talented ones. But this could be another discussion having hard working or talented players at young ages.

SAPA Fehérvár AV 19 has made skating school for players under 6 years old children. It is a sieve for the kids. They do not come straight to the organizations teams, they just participate in a 6 month long skating sessions. The last two skating schools the club had 60-80 kids participating in. The players who adapt in less time get invitation to the clubs U8 teams practices. Thus the players already get selected.

But in six month the coaches really need to observe the children closely and they need tools to select those players they can work on with. The first is that one coach usually sits on the stairs and observes the players and makes notes on papers. The three checklist (appendix 1-2-3) are helpful tools to measure psychological advantages and disadvantages. It is not enough that the player learns quickly how to do some basic skating technique, but it is also important for example that the players is coachable otherwise it would make practices unprofessional and unable to run. Coping with other children, being recalcitrant, and other qualities what are the coach is looking for.

At the older ages are still need for selecting players. When the players are going up level by level the teams needs less and less players (Figure 5). From this occasion there are still players that get cut off, or has to stay back one age groups. Usually these players quit playing soon after they cannot get promoted to the older age group.

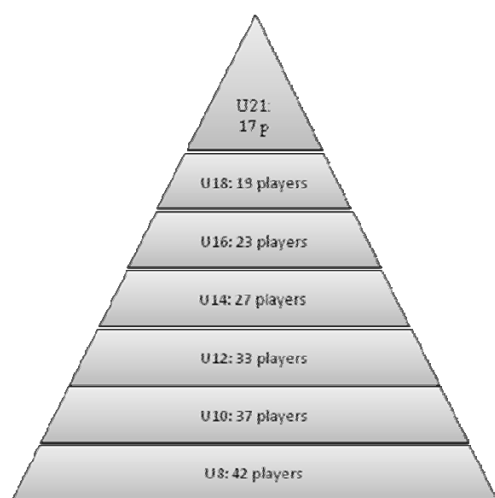


Figure 5: SAPA Fehérvár AV 19's youth teams pyramid

Important change was also the mental preparations. Usually the players arrived few minutes before the trainings, dressed up and fall in to practice. Such environments the coaches were unable to do professional work with the players. So the next change was to make the players come earlier to practices warm up physically and mentally as well (Table 6). For this the coaches made a table when the players from the different teams have to come to- and can leave- practice

Table 6: Youth teams preparation schedule

Age	Denomination	Time
U10	Dressed for warm up	40 minutes before ice
	Off-ice warm up	10 minutes
	Dressing	25 minutes
	Dressed before ice:	5 minutes before ice
	Undressing:	20 minutes after ice
	Cool Down:	10 minutes
U12	Dressed for warm up	40 minutes before ice
	Off-ice warm up	15 minutes
	Dressing	20 minutes
	Dressed before ice:	5 minutes before ice
	Undressing:	15 minutes after ice
	Cool Down:	15 minutes
U14	Dressed for warm up	40 minutes before ice
	Off-ice warm up	15 minutes
	Dressing	20 minutes
	Dressed before ice:	5 minutes before ice
	Undressing:	15 minutes after ice
	Cool Down:	15 minutes
U16	Dressed for warm up	45 minutes before ice
	Off-ice warm up	25 minutes
	Dressing	15 minutes
	Dressed before ice:	5 minutes before ice
	Undressing:	10 minutes after ice
	Cool Down:	20 minutes
U18 - U21	Dressed for warm up	45 minutes before ice
	Off-ice warm up	25 minutes
	Dressing	15 minutes
	Dressed before ice:	5 minutes before ice
	Undressing:	10 minutes after ice
	Cool Down:	30 minutes

This worked properly in the year. The club had the less injuries every in its history this year. Physical and mental preparation made the practices safer for the players (Table 7). Their body got use to it quickly and made the games also much safer, because they could play with relaxed and well cared body. Also it helped to use the ice more efficiently, because the precious time did not go to on ice warm ups or not for long at could be used for work.

Table 7: Injuries in the past 4 season

Injuries in		2009- 2010	2008- 2009	2007- 2008	2006- 2007
U12	Minor	8	15	13	19
	Major	0	1	3	0
U14	Minor	13	21	24	18
	Major	2	3	2	5
U16	Minor	15	13	15	23
	Major	0	5	3	3
U18	Minor	13	17	18	14
	Major	1	3	6	2
U21	Minor	11	16	27	20
	Major	4	7	6	8

3.2.3 Psychical

Just in the chapters before the main idea was the same as it was mentioned above in chapter 2. The coaching stuff together mad a main outline for the whole youth program (Table 8). And by that all of the coaches for that given age groups made a yearly plan, what the children need to cover. After that, the coaches sat down and put it together. Every coach gave his ideas in it and changed it a bit plus made it that the different age groups could fit to each other. By this the child who started to skate can develop just by one main direction, where every stage is built on the other, every small thing they learned will lead to a more advanced skill, technique or tactic. This makes time valuable because the players do not have side tracks to learn, things they cannot use in later stages are left out. This curriculum is not linked in here because lack of space, it is more than 100 pages long. But the main table is here to see and understand the main idea (Table 8).

	U6	U8	U10	U12	U14	U16	U18	U21
Body Awareness	yes	Transition to no		no	no	no	no	no
ABC, Agility, Balance Coordination	yes	yes	yes	yes	yes	yes	yes	yes
Basic Motoric Skills	yes	Transition to no				no	no	no
Basic Sport Skills	yes	Transition to no				no	no	no
Puck Manipulative Drills	yes	yes	yes	yes	yes	yes	yes	yes
Basic Tactics	yes	Transition to no				no	no	no
Spatial Awareness	no	Transition to yes				yes	yes	yes
Positional Awareness	no	Transition to yes				yes	yes	yes
Practice and game importance percentage	100->0	100->0	80->20	70->30	70->30	60->40	50->50	50->50
Warm up	no	no	no	yes	yes	yes	yes	yes
Basic Hockey Techniques	yes	yes	yes	yes	yes	Transition to no		
Medium Hockey Techniques	no	no	Transition to yes		yes	yes	yes	yes
Small Group Tactics	no	no	yes	yes	Transition to no		no	no
Individual Game Speed	no	no	yes	yes	yes	yes	yes	yes
Group Game Speed	no	no	Transition to yes		yes	yes	yes	yes
Team Game Speed	no	no	no	no	no	Transition to yes		yes
General Athletic Fitness	no	no	Transition to yes			yes	yes	yes
Hockey Specific Athletic Fitness	yes	yes	yes	yes	yes	yes	yes	yes
Extended Tactics	no	no	no	no	no	yes	yes	yes
Anaerobic and strength Development	no	no	no	no	no	yes	yes	yes
Game Tactics	no	no	no	Transition to yes		yes	yes	yes
Regeneration	no	no	no	Transition to yes		yes	yes	yes

4 Discussion

4.1 Summary

Hungarian has stepped into its Golden Age by winning the World Championships Division I and got promoted to the highest level in 2008. Since then the sport got more attention across the country by the media, and became more popular to all the people. Lot of young children started to play hockey, and the government has invested some money to the youth level organization. However the future still does not look bright enough for Hungarian Ice Hockey.

Objective of this project-oriented thesis is to make a handbook of these clubs in these third kind of regions, how to develop their youth hockey to organization the highest levels as possible. It discusses about the advantages and disadvantages of using different kind of professional help from other countries.

The plan covers all the necessary direction to really be able to run a professional youth hockey development. The economical part gives ideas how to bloat up the budget of the teams, how to use the ice times and some other small tricks that can be used to achieve a workable environment for the team. The psychological part contains things like how to select players and why, how to avoid player drop outs, what changes are needed to be done to be able to run professional practices when the teams are already on the ice. The physical part contains information how to organize the age groups that what they learn, they can use almost all of them in the higher stages. Gives a model how historical youth hockey programs can emerge.

4.2 Conclusion

In conclusion having a well structured model for the players from the age of 6 until the age of 21, is essential. When analysing the results it needs to be taken into consideration that one year for an overall plan for this long cannot be anticipated. That is too short time for the changes to be shown on the players performance. However the results show that well designed practices, can go further than just jump in and do practices. The overall plan is unavoidable to raise and nurture players to became elite players. Results also show that a well working structure gives more safer background for the players, reduces injuries physically and mentally as well.

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Appendix 1. Physical Skills Checklist

Circle the number that applies to the player.

Determine one action to address weakest areas.

1. **Size** (body size and type match sport) 1 2 3 4 5

Action plan: _____

2. **Speed** (meets basic requirements for sport or position) 1 2 3 4 5

Action plan: _____

3. **Quickness** (has quick feet; is always in position) 1 2 3 4 5

Action plan: _____

4. **Strength** (is strong enough to play position in sport) 1 2 3 4 5

Action plan: _____

5. **Power** (combines strength with explosiveness) 1 2 3 4 5

Action plan: _____

6. **Agility** (changes directions or body position while moving) 1 2 3 4 5

Action plan: _____

7. **Flexibility** (has fluid, full range of motion in each part of body) 1 2 3 4 5

Action plan: _____

8. **Coordination** (hand-eye, foot-eye, general) 1 2 3 4 5

Action plan: _____

9. **Cardio respiratory fitness** (can use oxygen for long periods) 1 2 3 4 5

Action plan: _____

10. **Vision** (can see entire court, field, area) 1 2 3 4 5

Action plan: _____

(Bompa 2002, 23)

Appendix 2. Mental Skills Evaluation

Name: _____

Sport: _____

Circle a number for each item (1 is low; 5 is high)

Mental preparation prior to game	1 2 3 4 5
Precompetition activity	1 2 3 4 5
Emotional readiness	1 2 3 4 5
Self-confidence	1 2 3 4 5
Quality of effort	1 2 3 4 5
Concentration	1 2 3 4 5
Consistency of focus	1 2 3 4 5
Mental toughness	1 2 3 4 5
Ability to let go of mistakes	1 2 3 4 5
Poise	1 2 3 4 5
Control of negative thoughts	1 2 3 4 5
Enjoyment	1 2 3 4 5
Communication with teammates	1 2 3 4 5

What aspects of the competition in today's event were you pleased with?

What aspects of the competition in today's event were you disappointed with?

(Bompa 2002, 43)

Appendix 3 Intangibles Checklist

Circle the number that applies to the player.

Determine one action to address weakest areas.

1. **Gets most out of ability** 1 2 3 4 5

Action plan: _____

2. **Has positive influence on teammates** 1 2 3 4 5

Action plan: _____

3. **Has a nose for the puck** 1 2 3 4 5

Action plan: _____

4. **Makes big plays** 1 2 3 4 5

Action plan: _____

5. **Makes teammates better** 1 2 3 4 5

Action plan: _____

6. **Anticipates** 1 2 3 4 5

Action plan: _____

7. **Is coachable** 1 2 3 4 5

Action plan: _____

8. **Adjusts to situations** 1 2 3 4 5

Action plan: _____

9. **Rises to the occasion** 1 2 3 4 5

Action plan: _____

10. **Has killer instinct** 1 2 3 4 5

Action plan: _____

(Bompa 2002, 53)